

THAT WHICH IS CLAIMED:

1. A nonwoven fabric which comprises:  
a first fibrous layer defining one outer surface of the fabric and a second  
fibrous layer defining an opposite outer surface of the fabric;  
5 the first fibrous layer comprising bicomponent or biconstituent fibers  
including a first component of a relatively higher fusion point first polymer and a second  
component of a lower fusion point second polymer; and  
the second fibrous layer comprising fibers of said relatively higher fusion  
point first polymer; and  
10 a plurality of fusion bonds bonding the fibers of the first layer and the  
fibers of the second layer to form a coherent multi-layer fabric.

2. A nonwoven fabric according to claim 1, wherein said first and second  
layers of fibers are bonded directly to one another by said fusion bonds.

3. A nonwoven fabric according to claim 1, including at least one additional  
15 layer located between said first and second fibrous layer.

4. A nonwoven fabric according to claim 3, wherein at least one additional  
layer comprises meltblown microfibers.

5. A nonwoven fabric according to claim 1, wherein the first fibrous layer  
comprises from 10 to 100 percent by weight of said bicomponent or biconstituent fibers.

6. A nonwoven fabric according to claim 1, wherein at least one of said first  
20 and second fibrous layers is a spunbonded web.

7. A nonwoven fabric according to claim 1, wherein the first fibrous layer  
comprises a blend of mono-component fibers formed of said relatively higher fusion  
point first polymer, and wherein the second fibers are sheath-core bicomponent fibers in  
25 which said relatively higher fusion point first polymer is located in the core and said  
lower fusion point second polymer is located in the sheath.

8. A nonwoven fabric according to claim 7, wherein the relatively higher fusion point first polymer is polypropylene and the lower fusion point second polymer is polyethylene.

9. A nonwoven fabric which comprises:  
5 a first layer of carded staple fibers defining one outer surface of the fabric;  
a second layer of carded staple fibers defining an opposite outer surface of the fabric; and

a plurality of fusion bonds bonding the fibers of the first layer and the fibers of the second layer to form a coherent multi-layer fabric;

10 the fibers of the first layer comprising a substantially homogeneous blend of polypropylene staple fibers and polyethylene/polypropylene bicomponent or biconstituent staple fibers in which the polyethylene component is present at the surface of the fibers; and

the fibers of the second layer comprising polypropylene staple fibers.

15 10. A nonwoven fabric according to claim 9, wherein said first and second layers of fibers are bonded directly to one another by said thermal bonds.

11. A nonwoven fabric according to claim 9, wherein the fibers of the first layer comprise a blend of polypropylene staple fibers and polyethylene-polypropylene sheath-core bicomponent fibers in which the polyethylene component is the sheath and  
20 the polypropylene component is the core.

12. A nonwoven fabric according to claim 9, wherein said first layer comprises from 40% to 100% by weight of said sheath core bicomponent fibers and from 0 to 60% by weight of said polypropylene fibers, and wherein said first layer of fibers comprises approximately 40% to 60% by weight of said fabric.

25 13. A nonwoven fabric according to claim 1, wherein said bonds are formed by passing the fabric through a calender nip defined between a smooth calender roll and a patterned calender roll, and wherein said bonds exhibit on said one outer surface a relatively non-indented configuration resulting from contact with said smooth calender

roll, and wherein the bonds on said opposite surface of the fabric exhibit a relatively indented embossed configuration resulting from contact with said patterned calender roll.

14. A nonwoven fabric which comprises:

a first layer of carded staple fibers defining one outer surface of the fabric;

5 a second layer of carded staple fibers defining an opposite outer surface of the fabric; and

a plurality of thermal bonds bonding the fibers of the first layer and the fibers of the second layer to form a coherent multi-layer fabric;

10 the fibers of the first layer comprising a substantially homogeneous blend of about 50% by weight polypropylene staple fibers and 50% by weight polyethylene/polypropylene sheath-core bicomponent staple fibers; and

the fibers of the second layer comprising 100% polypropylene staple fibers.

15 15. An article of manufacture comprising two nonwoven fabrics according to claim 1, positioned with said one outer surface thereof in opposing face-to-face contact with one another and including a zone of thermal fusion defining a seam joining the two fabrics together.

16. A method of making a nonwoven fabric comprising:

forming a fibrous web comprising bicomponent or biconstituent fibers including a

20 first component of a relatively higher fusion point first polymer and a second component of a lower fusion point second polymer;

forming a second fibrous web comprising fibers of; said relatively higher fusion point first polymer,

25 combining said first and second webs to form a multi-layer web with said first web defining one outer surface and said second web defining an opposite outer surface;

directing the multi-layer web through a heated calender nip defined between a smooth calender roll and a patterned calender roll, with said first web oriented to contact

said smooth calender roll and with said second web oriented to contact said patterned calender roll, and heating the webs to form thermal bonds bonding the fibers of the first web and the fibers of the second web and to unite the layers to form a coherent fabric.

17. A method according to claim 16, including heating the patterned roll to a  
5 higher temperature than the smooth roll.

18. A method of making a nonwoven fabric comprising:  
forming a first carded web of staple fibers comprising a blend of polypropylene  
fibers and polyethylene/polypropylene sheath-core bicomponent staple fibers;

forming a second carded web of polypropylene staple fibers;  
10 combining said first and second webs to form a multi-layer web with said first  
web defining one outer surface and said second web defining an opposite outer surface;

directing the multi-layer web through a heated calender nip defined between a  
smooth calender roll and a patterned calender roll, with said first web oriented to contact  
said smooth calender roll and with said second web oriented to contact said patterned  
15 calender roll, and heating the webs to form thermal bonds bonding the fibers of the first  
web and the fibers of the second web and to unite the layers to form a coherent fabric.

19. A method according to claim 17, including heating the patterned roll to a  
higher temperature than the smooth roll.

20. A method according to claim 17, wherein the patterned roll is heated to a  
20 temperature about 5 to 40 degrees F. greater than the average temperature of the two rolls  
and the smooth roll is heated to a temperature about 5 to 40 degrees F. lower than the  
average temperature.